Multi-scale Examination of the "Forgotten" 15 April 2011 Tornado Outbreak

Jason Beaman

Senior Forecaster

NWS Forecast Office

Mobile, Alabama

Jeffrey M. Medlin

Science and Operations Officer

NWS Forecast Office

Mobile, Alabama

* **Corresponding Author Contact Information**:

Jason Beaman

8400 Airport Blvd., Bldg#11

Mobile, AL 36608

jason.beaman@noaa.gov

On 15 April 2011, a significant tornado outbreak occurred over both southern Mississippi and Alabama. Occurring only days before the infamous 27 April 2011 Super Tornado Outbreak, this outbreak is destined to be known as the "forgotten outbreak" mainly due to a lack of ≥EF-4 tornadoes moving through major population centers. However, dating back to 1950, no other day has yielded this many tornadoes (18) with at least two being EF-3 intensity within this U.S. Region. Two tornadoes required the issuance of the rarely-used 'Tornado-Emergency.' The synoptic pattern was characterized by a progressive longwave upper trough with a notable diffluent axis whose vertex served as an "anchor point" for the generation of tornado-producing mesocyclones. 300-850 hPa differential divergence values exceeded $20x10^{-5}$ sec^{-1} within this zone. An 1800 UTC Jackson, MS sounding sampled the near-storm environment. 0-1 km mixed-layer CAPE and 0-3 km storm-relative helicity values were ~2100 J/kg and ~360 m^2/s^2, respectively. Significant Tornado Parameter values reached 5, while the Supercell Composite Parameter exceeded 20. SREF probabilities of these increased each model run prior to the event, greatly aiding forecaster confidence. This presentation examines the evolution of this outbreak, along with the benefits of using SREF severe composite indices probabilities. An analysis of the two 'Tornado-Emergency' cases and the Tornado Debris Signature of the Leakesville, MS EF-3 tornado are also presented.